

REMARKS

Claims 1-16 are pending. Claims 4-5 are objected to and claims 1-3 and 6-16 have been rejected. Applicants respectfully request consideration of claims 1-16.

Claims 1-3, 6-9 and 11-16 have been rejected under 35 U.S.C. § 103 as being unpatentable over Abusleme et al. (EP 1,038,914 A1, corresponding to U.S. Patent No. 6,476,150) in view of Stoepelmann (U.S. Patent No. 5,869,157). The rejection is respectfully traversed.

The presently claimed invention is directed to “[m]ultilayer manufactured articles” comprising “thermoprocessable copolymers of ethylene with chlorotrifluoroethylene, and/or tetrafluoroethylene, and with acrylic monomers of formula CH₂=CH-CO-O-R₂ (a)” (see claims 1 and 6) and “polyamides having an amount of –NH₂ end groups in the range of 40-300 μeq/g” (claim 1) or “polyamides having an amount of –NH₂ end groups lower than 40 μeq/g, blended with 0.01-5% by weight of one or more diamines” (claim 6).

Applicants respectfully submit that Stoepelmann teaches away from the presently claimed invention by disclosing that “when a polyamide, for example polyamide 12, balanced in the amino end groups, is utilized together with diamine as the adhesion promoter, for example, adequate adhesion cannot be achieved after the coextrusion process” (Stoepelmann, col. 3, lines 5-10 and col. 4, lines 19-27) (emphasis added). Stoepelmann states that “only a combination of a diamine ... and a polyamide, for example polyamide 12, having an excess of NH₂ end groups yields optimum adhesion values” (Stoepelmann, column 2, line 66 to column 3, line 4) (emphasis added). As such, Applicants respectfully submit that balanced polyamides

admixed with diamines of claims 6 and 16, or the polyamides with excess –NH₂ groups without a considerable or non-negligible amount of diamines would not have been obvious to those of skill in the art over Stoepelmann's disclosure of an adhesion promoter with –NH₂ excess polyamides admixed with a diamine. Stoepelmann clearly distinguishes balanced polyamides admixed with diamine and –NH₂ excess polyamides without admixture with non-negligible amounts of diamine from excess polyamides admixed with diamine. Accordingly, Applicants respectfully submit that the balanced polyamides admixed with diamines and the –NH₂ excess polyamides without admixture with non-negligible amounts of diamines can not be considered an equivalent adhesion promoter of –NH₂ excess polyamides admixed with a diamine.

Further, this non-equivalence is supported by Stoepelmann's disclosure that in contrast to the disclosed adhesion after coextrusion of -NH₂ excess polyamides admixed with a diamine, "when a PA12 balanced in the amino end groups is utilized together with diamine as an adhesion promoter, then adequate adhesion cannot be achieved directly after the coextrusion process of the respective polymer compounds. In this case, the adhesion is only achieved following annealing at 100°C-130°C. or after being stored for several days at room temperature" (Stoepelmann, col. 4, lines 19-26). As such, Applicants respectfully submit Stoepelmann teaches away from balanced polyamides admixed with diamines as an allegedly less effective adhesion promoter.

Applicants also respectfully submit that the cited references do not provide any motivation, teaching or suggestion for those of skill in the art to use balanced polyamides having a content of –NH₂ and –COOH groups of 35 μeq/g and admixed with diamine, or –NH₂ excess polyamides without admixture of non-negligible amounts of

diamines, in the multilayer of Abuseleme et al. which are tightly adhered without aid of an adhesion promoter. Abusleme et al. discloses that the fluoropolymer E/CTFE containing acrylic monomer (a) is admixed with a crosslinking agent, coupled to an hydrogenated layer and submitted to crosslinking in order to obtain manufactured multilayer having adhesion between the layers without using the tie-layer (see, e.g., Abusleme et al., page 2, lines 32-35). Those of skill in the art would not have been motivated by Stoepelmann to use allegedly less effective adhesion promoters to promote adhesion between the already tightly adhered layers of Abuseleme et al.

Further, Applicants submit that combining the disclosures of Abusleme et al. and Stoepelmann would result in a multilayer having a fluoropolymer layer, an intermediate layer and a hydrogenated layer where the fluoropolymer layer contains a crosslinking agent in considerable amounts, such as 1 to 5% by weight (see the working Examples of the cited references). Further, the intermediate non-fluorinated layer (or adhesion promoter) would be made of a polyamide having excess -NH₂ end groups (for example, having a concentration of 50 μeq/g (Stoepelmann, col. 4, lines 1-14)) and admixed with considerable amounts of a diamine and a polyamide having a balanced content of -NH₂ and -COOH groups (Stoepelmann, col. 4, lines 20-26) of “about 35 μeq/g (total number of end groups = -NH₂ end groups + -COOH end groups = 20 μeq/g + 50 μeq/g = 70 μeq/g; if the polymer has an equal amount of -NH₂ and -COOH end groups it should have 35 μeq/g of each)” (Office Action, page 3, lines 6-10), as calculated by the Examiner.

The present invention of claim 1 is directed to “[m]ultilayer manufactured articles comprising at least: A) a layer consisting essentially of thermoprocessable copolymers

of ethylene with chlorotriflouroethylene, and/or tetraflouoroethylene, and with acrylic monomers of formula $\text{CH}_2=\text{CH}-\text{CO}-\text{O}-\text{R}_2$ (a) ...; and B) a layer based on polyamides..."

In particular, Applicants note that present claim 1 requires "polyamides having an amount of $-\text{NH}_2$ end groups in the range of 40-300 $\mu\text{eq/g}$." In contrast to the multilayers that would result from the combined disclosures of Abusleme et al. and Stoepelmann, fluoropolymer layer A) of present claim 1 does not require the presence of a crosslinking agent and polyamide layer B) of present claim 1 does not require the presence of any diamine. Applicants respectfully submit that the phrase "consisting essentially of" in presently claim 1 regarding layer A) and layer B) excludes the presence of the crosslinking agent and the presence of the diamine in considerable or effective amounts, i.e. as required by the multilayers of the cited references. In contrast, the phrase "consisting essentially of" means that if additional components, such as the crosslinking agent and/or the diamine are present, they are in meaningless or negligible amounts as impurities. Applicants respectfully submit that Abusleme and Stoepelmann require amounts of the crosslinking agent and the diamine that are not negligible (about 1% by weight of diamine and about 5% of crosslinking agent).

Applicants again emphasize that the phrase "consisting essentially of" should not be read the same as the term "comprising." The considerations previously made for the transitional phrase "consisting essentially of" in the layer of A) can be applied also to the sentence "... B) a layer consisting essentially of polyamides..." (see claim 1). Additional components which may be included in the present layer B), for example, the diamines or crosslinking agents disclosed in the cited references, are components

which do not affect the basic and novel characteristics of the present multilayers if present in negligible or non-considerable amounts, i.e. as impurities.

As Abusleme et al. and Stoepelmann do not teach or suggest the presently claimed invention, Applicants respectfully submit that claims 1 and 6 would not have been obvious to those of skill in the art. Applicants submit that dependent claims 2-5 and 7-15 are patentable for at least the same reasons. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1-3, 6-9 and 11-16 under 35 U.S.C. § 103(a) as unpatentable over Abusleme et al. in view of Stoepelmann.

Claim 10 has been rejected under 35 U.S.C. § 103 as being unpatentable over Abusleme et al. in view of Stoepelmann as applied to claim 1 above, and further in view of Krause et al. (U.S. Patent No. 5,958,532). This rejection is respectfully traversed.

Applicants respectfully submit that Krause et al. does not overcome the deficiencies of Abusleme et al. or Stoepelmann (please see the discussion above). As such, Applicants respectfully submit that dependent claim 10 is patentable for at least the same reasons as claim 1.

As Abusleme et al., Stoepelmann and Krause et al. do not teach or suggest all of the elements of claim 10, Applicants respectfully submit that those of skill in the art would not have found claim 10 obvious over the disclosure of the cited combination of references. Thus, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 10 under 35 U.S.C. § 103(a) as obvious over Abusleme et al. in view of Stoepelmann as applied to claim 1, and further in view of Krause et al.

In view of the amendments and remarks above, Applicants respectfully submit that this application is in condition for allowance and request favorable action thereon. If the Examiner believes that anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below to schedule a personal or telephone interview to discuss any remaining issues.

In the event this paper is not considered to be timely filed, Applicants hereby petition for an appropriate extension of time. The fee for this extension may be charged to our Deposit Account No. 01-2300, referring to Attorney Docket No. **108910-00057**. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 01-2300, referencing Attorney Docket No. **108910-00057**.

Respectfully submitted,



Amy E.L. Schoenhard
Registration No. 46,512

Customer No. **004372**
ARENT FOX PLLC
1050 Connecticut Avenue, N.W., Suite 400
Washington, D.C. 20036-5339
Tel: (202) 857-6000
Fax: (202) 638-4810